



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. A-8957
This Certificate consists of 4 pages

This is to certify that the
Programmable Electronic System

with type designations
Melsec - FX2N Series
See page 2 & 3

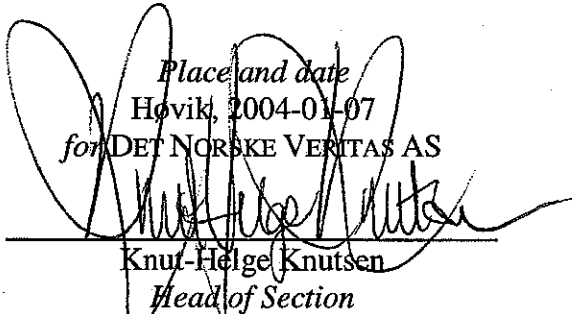
Manufactured by
Mitsubishi Electric Corporation Himeji Works
Hyogo Pref. 670-0993, Japan

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and
Mobile Offshore Units

Application
Location Classes:

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Melsec - FX2N Series	B	A	A	A	Required protection according to the Rules to be provided upon installation on board.
Melsec - FX2N Series 64DP-M/32NT-DP/ 32DP-IF	A	B	A	A	

Place and date
Hovik, 2004-01-07
for DET NORSKE VERITAS AS


Knut-Helge Knutsen
Head of Section



Local Office
DNV Kobe

This Certificate is valid until
2007-12-31


Birger W. Bulukin
Surveyor

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



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File No.: 862.50

Product description

Programmable Electronic System FX2N consisting of:

FX2N PLC Base units:

FX2N-16/32/48/64/80/128MR-ES/UL	Relay Output	100-240VAC
FX2N-16/32/48/64/80/128MR	" "	"
FX2N-16/32/48/64/80/128MT-ESS/UL	Transistor Output	"
FX2N-16/32/48/64/80/128MT	" "	"
FX2N-16/32/48/64/80/128MR-DS	Relay Output	24VDC
FX2N-16/32/48/64/80/128MR-	" "	"
FX2N-16/32/48/64/80/128MT-DSS	Transistor Output	"
FX2N-16/32/48/64/80/128MT-D	Transistor Output	"

FX2N Extension units:

FX2N-32/48ER-ES/UL	Relay Output	100-240VAC
FX2N-32/48ET-ESS/UL	Transistor Output	"
FX2N-32/48ER-DS	Relay Output	24VDC
FX2N-32/48ET-DSS	Transistor Output	"

FX2N Extension blocks (input only):

FX2N-16EX-ES/UL
FX2N-16EX

(output only):

FX2N-16EYR-ES/UL	Relay Output	
FX2N-16EYR	" "	
FX2N-16EYT-ESS/UL	Transistor Output	
FX2N-16EYT	" "	

Analogue input:

FX2N-4AD 24VDC

Analogue output:

FX2N-4 DA 24VDC

PT input:

FX2N-4AD-PT 24VDC

TC input

FX2N-4AD-TC 24VDC

High speed counter:

FX2N-1HC 24VDC

High speed pulse output:

FX2N-1PG-E 24VDC



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RS-232-C communication: FX2N-232IF	24VDC
Special function block: FX2N-64DP-M FX0N-32NT-DP	24VDC "
Special function unit: FX2N-32DP-IF	100 - 240VAC

Type Approval conditions

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case. Reference is made to DNV Rules for Ships / MOU Pt.4 Ch.5 Instrumentation and Automation.

Conditions for application functions.

Certification of Application functions will be required when the hardware is used in applications to be classed by DNV. The test is to be performed at manufacturer's works according to an approved test program for the actual application in the presence of DNV. The test is only to be performed for the first delivery if there are sister vessels.

Tests carried out

Applicable tests acc. to S.f.C.2.4

Type Approval documentation

Hardware Manual for FX2N dated July 97, Programming manual for FX2N dated September 1997,
Hardware Manual JY992D82901 rev.A dated June 2000,
Hardware Manual JY992D77101 rev.A dated March 1999,
User Manual JY992D61401 rev.B dated May 1997,
Drawings as found in ring binder DNV Application File

Evaluation/Test of Reliability BZ-5373 dated 97-08-27.

Test reports as found in ring binder DNV Application File:

- 5. Evaluation/Test on Reliability of FX2N-64DP-M / 32NT-DP / 32DP-IF
- Tokin EMC Test Report S2B004521

Certificate retention survey

The scope of the retention/renewal survey is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the survey are:

- Ensure that type approved documentation is available.



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- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines.
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications.
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given.
- Ensuring traceability between manufacturer's product type marking and the type approval certificate.

Survey to be performed at renewal of this certificate

END OF CERTIFICATE